



Some new records of Anatolia Newt, *Neurergus strauchii* (Steindacher 1887) from Eastern Anatolia, Turkey.

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Abstract

Here, we report 32 new localities for *Neurergus strauchii* (Steindacher 1887) from southern and eastern Anatolia, Turkey, based on fieldwork conducted in 2005 - 2017. These results represent range extension to the west, the south, and the northeast and fill the gaps on its distribution. Besides, the species is first time reported from Adıyaman province. We updated the distribution of *N. strauchii* for future conservation and management studies.

Key words: Amphibia, Anatolian spotted Newt, distribution, Salamandridae

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Türkiye'deki Anadolu Benekli Semenderi, *Neurergus strauchii*, (Steindacher 1887) için Güneydoğu Anadolu'dan yeni kayıtlar

Özet

Bu çalışma ile; *Neurergus strauchii* için Doğu ve Güneydoğu Anadolu bölgesinden 32 yeni lokalite tespit edilmiştir. Arazi çalışmaları 2005-2017 yılları arasında gerçekleştirilmiştir. Sonuç olarak; türün dağılım sahasının batı, güney ve güneydoğu istikametinde genişlemiş ve bilinen dağılım alanları arasındaki boşluklar doldurulmuştur. Bununla birlikte tür Adıyaman ilinden ilk kez tespit edilmiştir. Gelecekte yapılacak olan koruma ve yönetim çalışmaları için dağılım alanı güncellenmiştir.

Anahtar kelimeler: Amfibi, Benekli Semender, dağılım, Salamandridae

1. Introduction

The mountain newt's genus *Neurergus* Cope, 1862 consist of four species and spread over eastern and southeastern Anatolia, Iran, and Iraq (Levinton et al., 1992; Schmidtler, 1994; Papenfuss et al., 2009; Sparreboom, 2014). The Anatolia newt, *N. strauchii* (Steindacher, 1887), is an endemic species and distributed from central Anatolia and the western area of Lake Van in eastern Turkey (Schmidtler and Schmidtler, 1970; Öz, 1994). *N. strauchii* has two subspecies, *N. s. strauchii* and *N. s. barani*. *N. s. strauchii* has a wider distribution and is found in the east from River Euphrates up onto the Lake Van area, and subspecies *N. s. barani* Öz, 1994 is only known from the Kubbe Mountains located in the south-east of Malatya (Öz, 1994; Pasmans et al., 2006). Recently, some new localities were reported from

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Elazığ province (Tok et al., 2016) and north of Murat River, 20 km north of Tunceli province (Olgun et al., 2015). Besides, Olgun et al. (2016) described the new subspecies, *N. s. munzurensis* from Tunceli province (Eastern Anatolia, Turkey).

Neurergus strauchii is poorly known species and its distribution is not enough studied until now. Turkish General Directorate of Nature Conservation and National Park has started "National Biological Diversity Inventory and Monitoring Project – Noah's Ark" since 2013 due to determine the floral and faunal diversity and distribution of Turkey. In the present paper, we present some new localities of *N. strauchii* from eastern Anatolia during fieldwork on these projects and our personal field studies.

2. Materials and methods

In our fieldwork between 2005-2017, we conducted 28-day fieldwork covering the most of the actual distribution area [Adıyaman, Batman, Bingöl, Bitlis, Diyarbakır, Elazığ, Siirt, and Van] of *N. strauchii*. A total of 32 localities which were approximately between 765 and 1933 m a.s.l were surveyed during our excursions. The geographical coordinates of the detected species were computed with the GPS device (Model Garmin Montana 650). These localities were shown on the map in Figure 1

Field studies were conducted by a team of 3-4 people. Specimens were caught by hand or scoop. Color photographs of the live specimens were taken on site. After the examination and photographing, they were released at the points where they had been captured. The photographs of the species and their habitats were taken using digital cameras (Nikon D80, Nikon D300s) and lenses (Sigma 90 mm Macro, 70-300 mm, 18-105 mm and 50-500 mm).

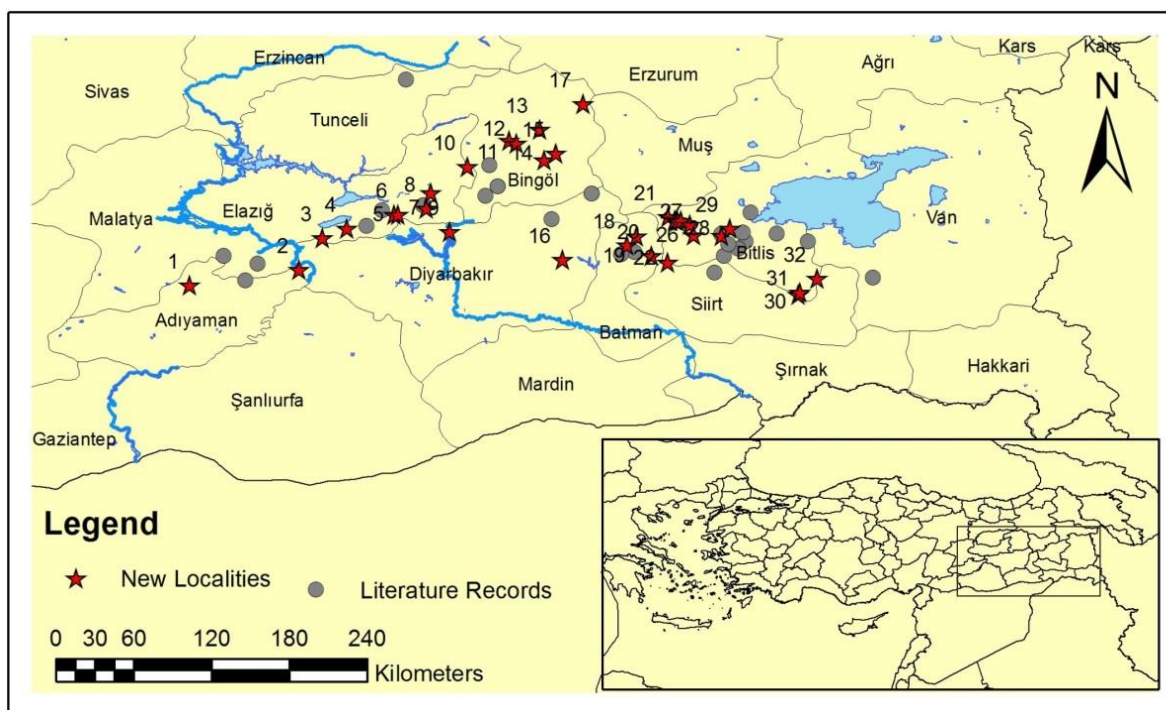


Figure 1. The distribution of *N. strauchii* from Anatolia. The gray circles denote the known literature records cited in the reference list whereas the stars denote the new localities

3. Results

We detected it in 32 new localities (Table 1) two from Adıyaman province, six from Elazığ province, two from Diyarbakır province, seven from Bingöl province, three from Batman, ten from Bitlis, one from Siirt and one from Van provinces (Table 1). We observed a total of 123 adults or larvae at different stages near or edge of small creeks (Figure 2), photographed, and then released them where they were captured (Figure 3).

Table 1. The list and some geographic information of the new localities

No	Locality	Province	Date	No. of individual	Latitude	Longitude	Altitude m a.s.l.
1	Mutlu village	Adıyaman	26.06.2016	1	38.051467	38.398812	1180
2	Gölyurt village	Adıyaman	11.06.2015	7	38.158284	39.158056	942
3	Alaattin village	Elazığ	23.05.2017	2	38.378718	39.319843	1643
4	Bahçedere village	Elazığ	21.04.2017	2	38.443138	39.490621	1269
5	Alacakaya	Elazığ	10.05.2017	1	38.539766	39.818201	1311
6	Yaylacık village	Elazığ	25.03.2017	15	38.541111	39.841700	1336
7	Damlapınarı village	Elazığ	26.03.2017	5	38.691783	40.069539	1214
8	Koşkar stream, Arıcak village	Elazığ	17.07.2017	1	38.583904	40.038592	1349
9	Değirmenli village	Diyarbakır	28.06.2014	15	38.418577	40.200562	765
10	Mountain Haserek (Yelesen village)	Bingöl	20.05.2017	1	38.870176	40.323356	1803
11	Dalltepe	Bingöl	05.06.2016	3	39.052875	40.613620	1818
12	Yenibaşlar village	Bingöl	17.05.2017	2	39.034823	40.664621	1571
13	Halifan	Bingöl	16.05.2015	14	39.131168	40.824087	1469
14	Bingöl Şeref Meydanı	Bingöl	21.05.2015	7	38.916049	40.856678	1584
15	Yüzen Ada	Bingöl	19.05.2017	1	38.962977	40.937868	1271
16	Boyunlu village	Diyarbakır	10.05.2005	1	38.228772	40.982862	1096
17	Kargapazarı village	Bingöl	18.05.2017	1	39.307546	41.124622	1933
18	Sevek Recreation Area, Sason	Batman	01.04.2017	1	38.327775	41.429700	919
19	Yürekli village	Batman	09.04.2016	1	38.389472	41.496469	1477
20	Akçakışla village	Batman	25.05.2017	1	38.254164	41.598797	1036
21	Beşevler village	Bitlis	10.04.2016	1	38.522689	41.713703	1279
22	Ardıçdalı village	Siirt	19.05.2012	10	38.208352	41.710491	1187
23	Çitliyol village	Bitlis	10.04.2016	1	38.501801	41.762878	1229
24	Gümüşkanat stream	Bitlis	10.04.2016	1	38.494350	41.779304	1212
25	Arpalıseki village	Bitlis	10.04.2016	1	38.498188	41.802687	1339
26	Çığır village	Bitlis	10.04.2016	1	38.470305	41.865957	1627
27	Üstyayla village	Bitlis	27.05.2015	2	38.398755	41.892270	1719
28	Tatlıkaynak village	Bitlis	27.05.2015	1	38.394351	42.086120	1586
29	Bitlis stream near Bitlis Public Hospital	Bitlis	09.04.2016	2	38.442576	42.142363	1672
30	Hacımehmet village	Bitlis	08.04.2016	2	37.983379	42.615573	995
31	Döküktaş	Bitlis	08.04.2016	1	38.000269	42.629089	1343
32	Bahçesaray	Van	21.08.2014	4	38.097481	42.748431	1756

Figure 2. The habitats of *N. strauchii* from (A) Gölyurt village, Adıyaman; (B) Üstyayla village, Bitlis; (C) Değirmenli village, Diyarbakır; (D) Ardıçdalı village, Siirt

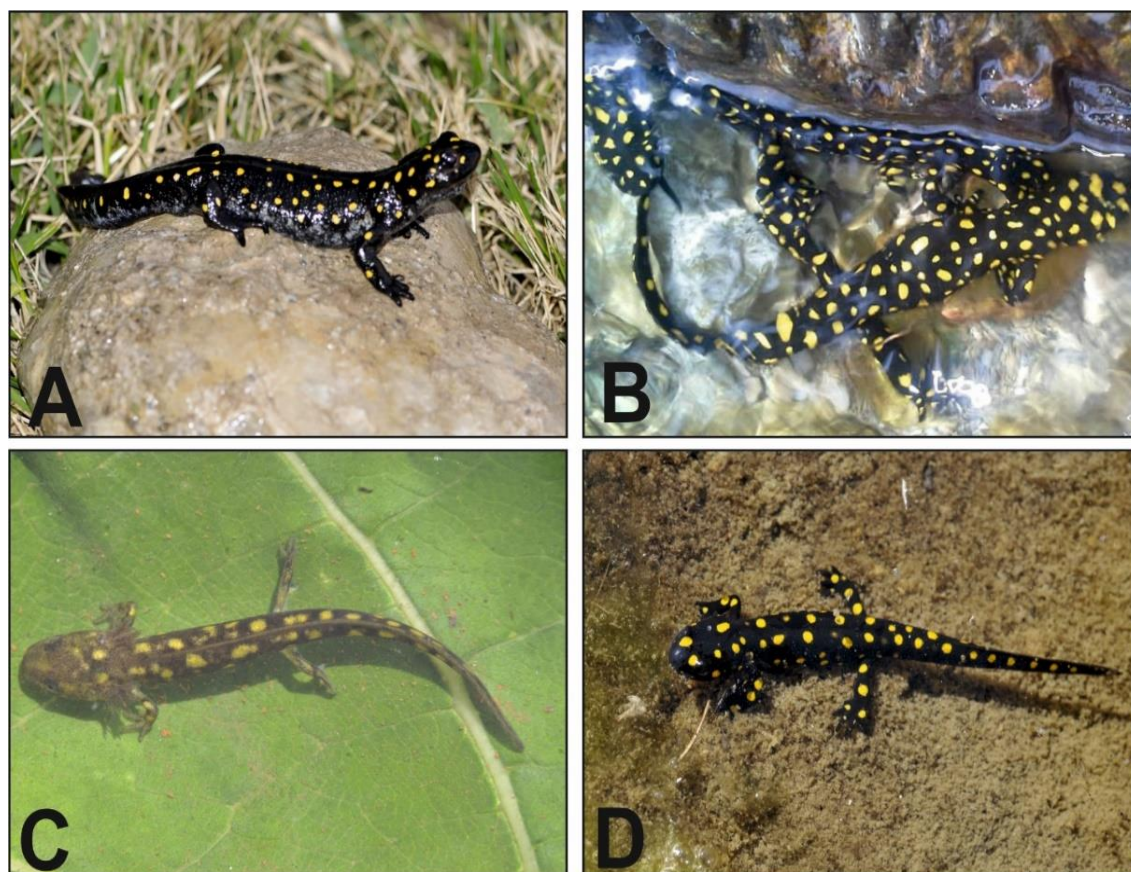


Figure 3. The general view of (A) an adult female from Gölyurt village, Adıyaman; (B) adults from Ardıçalı village, Siirt; (C) a larva from Tatlıkaynak village, Bitlis; (D) a larva from Bahçesaray, Van

4. Conclusions and discussion

Anatolia Newt, *Neurergus strauchii*, inhabits the small and cool mountain streams and overwinters on land under stones and in burrows (Schmidler and Schmidler, 1970; Baçoğlu et al., 1994; Koyun et al., 2013). The species is listed as the vulnerable category in the IUCN Red List of Threatened Species (Papenfuss et al., 2009) and exhibits a discontinuous distribution in eastern and southeastern Anatolia. The Euphrates (Pasman et al., 2006) and Murat rivers (Olgun et al., 2016) separates three subspecies. *Neurergus s. strauchii* distributes eastern part of the Euphrates River. While *N. s. barani* Öz, 1994 inhabits the western part of the range, *N. s. munzurensis* Olgun et al. 2016 found north part of Murat River.

Anatolia newt is quite sensitive to habitat destruction, fragmentation, and global climate change (Bogaerts et al., 2012). We observed the population near settlements suffered from destruction its habitats and pollution. Besides, the species could be lost habitats from its western and eastern boundaries in near future due to climate change (Tok et al., 2016). Furthermore, the wrong beliefs of the locals are another pressure on the species. As previously emphasized, Anatolia Newt urgently needs an action plan and a long-term monitoring program for the sustainability of its population in future (Bogaerts et al., 2012; Tok et al., 2016). We prepared the detailed distribution map of the species with new records for future conservation and management studies. These results represent range extension 10 km air distance to the west, 20 km to the northern east and 5 km to south and fill the gaps on its distribution.

Acknowledgements

We thank Republic of Turkey Directorates of the Ministry of Forestry and Water Affairs for permission and financial support, Dr. Mücahit EROĞLU, Dr. Mustafa KUTLU, Dr. Mustafa COŞKUN and Dr. Tamer KAYIŞ for assistance of field studies, to Adıyaman University Scientific Research Coordination Unit (FEFBAP 2014 0010) for financial support, and Turunç Peyzaj A.Ş., Ekoplan Engineering Co. Inc and ANADOKU Co. Inc. for their coordination during the biodiversity projects.

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(Received for publication 07 December 2017; The date of publication 15 April 2018)